CLAIMS

1. A method for the decoration of a porous ceramic substrate, which comprises:

1) the application of a colorant composition comprising a colorant material and a carrier on at least a portion of a ceramic substrate having surface microporosities, so as to allow said colorant composition to penetrate the pores of said ceramic substrate;

2) the application of a hardenable resin on the treated portion of the ceramic substrate,

3) the polymerization or drying of said hardenable resin to fix the colorant material to the ceramic substrate.

2. The method according to claim 1, characterized in that said colorant material is a pigment or dye suitable for application on ceramic substrates.

3. The method according to claim 1 or 2, characterized in that it comprises the application of a pigment dispersed in a volatile dispersing agent.

4. The method according to any of the claims 1-3, characterized in that said pigment comprises a pigment selected from natural, organic, effect pigments such as metallic, metallescent, micalized pigments and their mixtures.

5. The method according to any of the claims 1-4, characterized in that said application phase is carried

out by means of a manual technique selected from pads, brushes, aerographs, or a non-manual technique selected from flexography, screen-printing, gravure printing, digital printing, offset printing, roller coating, curtain coating, spray, vacuum.

6. The method according to any of the claims 1-5, characterized in that it comprises an intermediate drying phase of the dye or pigment applied.

7. The method according to any of the claims 1-6, characterized in that it comprises a final polishing phase of the decorated ceramic substrate.

8. The method according to any of the claims 1-7, characterized in that said hardenable composition is a photo-curable resin or a composition curable with ultraviolet rays (UV).

9. The method according to any of the claims 1-8, characterized in that said irradiation is effected by exposure to an electromagnetic radiation with a wavelength ranging from 100 to 780 nm.

10. The method according to claim 9, characterized in that said irradiation is effected by exposure to UV-VIS rays.

11. The method according to any of the previous claims 8-10, characterized in that it comprises the application of a quantity ranging from 0,1 to 25 g/m^2 of

said photo-curing composition on the material to be treated.

12. The method according to any of the previous claims 8-11, characterized in that said photo-curing composition comprises a prepolymer selected from radicalic systems, cationic systems and their mixtures.

13. The method according to claim 12, characterized in that said prepolymer is a radicalic system selected from the group consisting of unsaturated polyesters, epoxy acrylates, urethane acrylates, aromatic urethanes, aliphatic urethanes, polyester acrylates, polyether acrylates, acrylic acrylates and their mixtures.

14. The method according to claim 12, characterized in that said prepolymer is a cationic system selected from the group consisting of epoxy monomers, epoxy oligomers, polyols, vinyl-ethers, glycols and their mixtures.

15. The method according to any of the previous claims 8-14, characterized in that said curing composition also comprises one or more reactive diluents and/or additives selected from the group consisting of adhesion promoters, wetting agents, surface-active agents, light stabilizers, bactericides, fluorinated monomers, abrasion resistance additives, dispersing agents, viscosity modifiers, fillers, pigments, polymerization inhibitors, sta-

bilizers.

16. The method according to any of the previous claims 8-15, characterized in that said curing composition comprises at least one photoinitiator.

17. The method according to claim 16, characterized in that said photo-initiator is selected from the group consisting of alpha-hydroxyketones, alpha-aminoketones, acylphosphinoxides, thioxantones, benzophenones, oxymesters, anthracenes, benzyl-dimethyl-ketals, benzoin ethers, amines and their mixtures.

18. The method according to any of the previous claims 1-17, characterized in that the application and curing phases by means of irradiation are repeated two or three times on the same ceramic substrate.

19. The method according to any of the previous claims 1-18, characterized in that it comprises a preliminary treatment phase of said ceramic substrate with a solution at acid pH.

20. The method according to any of claims 1-7, characterized in that the hardenable composition is selected from the group of waterborne and solventbased Alkyd resin (e.g. Synolac, Gelkyd, Unithane, Synaqua - CRAY VALLEY; Uralac, Urathix, Uradil - DSM; Alkydal - BAYER; Laropal - BASF; Vialkyd, Daotan, Resydrols - VIANOVA), waterborne and solventbased Acrylics; waterborne, solventbased or 2-

pack Epoxies, waterborne and solventbased Saturated polyesters, waterborne, solventbased or 2-pack Polyurethanes, Phenolic resins or phenolplasts and their mixtures.

21. A method for the decoration of a porous ceramic substrate, which comprises:

A) the application of a hardenable coloring composition comprising a colorant material and a hardenable resin on at least a portion of a ceramic substrate having surface microporosities, so as to allow said hardenable coloring composition to penetrate the pores of said ceramic substrate;

B) the polymerization or drying of said hardenable coloring composition to firmly fix the colorant material to the decorated ceramic substrate.

22. The method according to claim 20, characterized in that the hardenable composition is a photocurable resin.

23. The method according to claim 20, characterized in that the hardenable composition is selected from the group of waterborne and solventbased Alkyd resin (e.g. Synolac, Gelkyd, Unithane, Synaqua - CRAY VALLEY; Uralac, Urathix, Uradil - DSM; Alkydal - BAYER; Laropal - BASF; Vialkyd, Daotan, Resydrols - VIANOVA), waterborne and solventbased Acrylics (e.g. GLASCOL - Ciba Specialty Chemicals; waterborne, solventbased or 2-pack Epoxies,

waterborne and solventbased Saturated polyesters, waterborne, solventbased or 2-pack Polyurethanes, Phenolic resins or phenolplasts and their mixtures.